



5. Female and Minority Experiences in Science

WOMEN AND MINORITIES: NEGOTIATING SALARIES

by Lee Kass and Kathleen Gale

The objective of this article is to heighten awareness for women and minorities about the effect of starting salary on career earnings and the materials available for assessing your potential employer. The bottom line is that a low starting salary will haunt you throughout your academic career. In general, the salaries of women are significantly lower than their male counterparts in academia, as most recently reported by the American Association of University Professors (AAUP) in its 2002 Annual Report on the Economic Status of the Profession¹—although the discrepancies have existed for at least 30 years. One explanation is that male and female candidates have different behaviors and expectations in the job application and interview process. There may also be systemic sexism in academia (Rossiter 1982, 1995). Similarly, minority persons may also interview differently than those in the majority, and they may face covert institu-



If no outstanding minority or female students are identified at the institution, this could be an indication of the departmental and institutional climate regarding underrepresented minority populations.

tional racism. In hopes that it may help counteract prevailing trends and behaviors, we offer our own experiences and advice to people interviewing for the first time.

The interviews and salary negotiations that we describe took place at a small liberal arts college in the early 1980s. One of us already had a job and felt secure in negotiating a new contract, whereas the other was delighted simply to be interviewed and did not consider negotiating. This job would provide a secondary income, so salary was less critical. Neither of us considered that the future might require our financial independence, which it ultimately did. Both of our starting salaries were low, but a minimal negotiation significantly raised the initial salary for one of us.

Ten years later, by examining the pattern of salaries by gender at our institution and by looking at the data published in *Academe*,² the journal of the AAUP, we realized the consequences of our failure to adequately bargain fair and comparable starting salaries. Not only were our salaries unfairly low, but so were those of other women in our institution. By examining national averages at all levels of colleges and universities, we learned that this was a national pattern. If a class of people starts with a low base-rate salary, even high percentage raises will not allow them to catch up with peers in other groups.

In view of our experience, we offer the following advice to young women and minorities who are applying and interviewing for academic jobs:

- » Consult *Academe* for the average salaries of the institution in question.
- » Know your worth in your field.
- » Ask your interviewer about the salary range for the position that you hope to be offered.
- » Discover other aspects of the institution.
- » Before going to the campus, talk to other faculty, graduate students, and undergraduates about the treatment and feelings of minorities on campus.
- » Include the salary you expect in your cover letter.
- » Be aware that you may get a stock reaction from a discriminatory institution, in that they will not meet your fair salary request.

We found AAUP's publications most valuable for ascertaining average salaries in universities and colleges. This source is especially valuable for data on private institutions because details of their salaries are not generally available. To our knowledge, since the early 1970s, the March/April issues³ of AAUP publications have reported on the economic status of the professions. For example, in Table 5 of the 2002 report,⁴ you will find evidence of apparent salary discrimination based on sex in the aggregate data for all colleges and universities listed.

To find an approximation of your worth, examine the salary ranges published in the job advertisements in your field in the

*Chronicle of Higher Education*⁵ and in your professional journals. This will give you an idea of what is being offered in the market. You may also talk with graduate student or postdoctoral colleagues about their interviewing experiences to learn whether the salary you have been offered is commensurate with what they have received.

We suggest you avoid applying to or interviewing at institutions that have been sanctioned or that have administrations that have been censured by the AAUP. Such organizations are listed on AAUP's Web sites. The AAUP committee on governance investigates *serious* infringement of governance standards recognized by the association. If an institution fails to meet these standards, AAUP may sanction that institution to force compliance with its guidelines as set forth in its Statement on Government of College and Universities and derivative governance documents. Three institutions are currently on the AAUP sanctioned list, one first cited almost 10 years ago.⁶ The AAUP Committee on Academic Freedom and Tenure censures administrations that are not observing the generally recognized principles of academic freedom and tenure endorsed by the association in its 1940 Statement of Principles on Academic Freedom and Tenure.⁷ A surprisingly large number of administrations—53 at this writing—are currently under censure because of infringement or violation of faculty freedom to teach, conduct research, or publish. You may want to refrain from accepting an appointment with a censured administration.

To determine the environment for women and minorities on the campus in question, first find the university's or college's Web site or get a copy of its bulletin.

Locate the department to which you are applying, review the names of faculty listed in that department, and note the diversity of its faculty members. Contact a few of them by e-mail or by phone and discuss their attitudes toward women and minorities. Ask for the names of their best graduate, undergraduate, and minority students and contact those students. If they fail to mention outstanding minority or female students, this could be an indication of the departmental and institutional climate regarding underrepresented populations.

Our experience on search committees has taught us that it is usually effective to ask for the salary you expect. We observed that white males are more assertive in this regard than are women or minorities. However, if you are qualified for the job and have asked for a salary that is reasonable in terms of the data you collected, but you don't get an interview or receive a job offer, you may be experiencing institutional discrimination. We know of an interview at which a well-qualified woman asked for a salary at the top of the range. Her request was unequivocally denied and her interview was immediately terminated. However, the man who was eventually hired for that position was less qualified but was given the uppermost salary. You may wish to notify AAUP in writing if you believe you have been unfairly treated during your interview process. Such documentation is valuable if



the AAUP investigates that institution.

We invite you to use our checklist when you apply and interview for jobs. We urge you to document and discuss your experiences with your colleagues. You can influence the outcome of your interview by being well prepared, assertive, confident, and knowledgeable. However, only excellent documentation and collective action can identify institutional racism and sexism. We wish you successful negotiating.

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1. 2002 Annual Report on the Economic Status of the Profession: <http://www.aaup.org>
2. *Academe*: <http://www.aaup.org/publications/Academe/index.htm>
3. March/April issues *Academe*: <http://aaup.org/publications/academe/2006/o6ma/o6matoc.htm>
4. 2002 Annual Report: <http://www.aaup.org/surveys>
5. *Chronicle of Higher Education*: <http://www.chronicle.com>
6. 10 years ago: <http://www.aaup.org/governance>
7. Statement of Principles on Academic Freedom and Tenure: <http://www.aaup.org/Com-a/Censure.htm>

THE TOP FIVE CHALLENGES FOR PREGNANT SCIENTISTS

by Lynn Dicks

Pregnancy changes your life. When you become pregnant, you become a different entity in employment law and in the eyes of those you work with. Your research can be affected in many ways, many of them unforeseeable. Here's a guide to handling the new challenges.

Challenge 1: Know Your Rights

The most important thing for scientists starting a family is to understand the rights of European mothers in the workplace. The 1992 European Directive on pregnant workers and new mothers,¹ which has since become law in every member state, gives women employees a number of important rights.

Your employer is obliged to carry out a risk assessment² on your work once you have given notice of your pregnancy. In most countries, you have to do this in writing. It is a good idea to notify your employer as soon as possible, because some risks are higher

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early in pregnancy. Any risks identified by the risk assessment should be avoided. If it is not possible to avoid them, you are entitled to paid leave for the period of the pregnancy.

The directive demands a minimum of 14 weeks paid maternity leave. It protects you from being dismissed because of pregnancy and entitles you to time off for antenatal checks. It also covers women who are still breastfeeding when they return to work. Breastfeeding mothers are protected from chemical and biological hazards in the same way as pregnant mothers, and employers are required to provide a private, comfortable space suitable for breastfeeding or breast-milk extraction (not a toilet).

If you're a student, Ph.D. or otherwise, this law does not protect you. Still, most funding bodies will pay a period of maternity leave for postgraduate students, and institutions and companies whose premises they work on will treat them as members of staff in terms of health and safety. But whether students are entitled to paid extended leave due to a pregnancy-related risk is still a grey area in most institutions. It's worth finding out from your supervisor or institute where you stand before the situation arises.

Challenge 2: Your Ability to Do Your Job

Some parts of your job may become uncomfortable or impossible when you are pregnant. Manual lifting is dangerous, because your ligaments are softened. Lone fieldwork is not advisable, and activities that put your body under stress, such as diving or climbing, are out. Long hours and working in hot conditions should be avoided. Sitting on uncomfortable lab stools or standing for long periods are not only difficult but increase the risk of low birth weight or preterm delivery. In early pregnancy, the smell of chemicals you are working with may make you vomit. These are all recognised risks. Make sure the person doing your risk assessment knows what difficulties you are facing.

It isn't always practical to set aside your work-related responsibilities, but the health of your future child may depend on it. "Often the solution is simply to rotate your job with someone else or vary your duties, so you are not in one place for so long," says Jane Paul, a health and safety expert who advises the International Labour Organisation³ (ILO).

Sometimes it is the employer or the authorities, rather than the scientist herself, that imposes the restrictions, and this can lead to frustrating conflicts. As a pregnant ecology student in the United Kingdom, I was forced by my funding body to be accompanied during fieldwork. This was a serious inconvenience. I was left responsible for finding someone to join me and with no resources to pay them.

The European Directive on pregnant workers states that you cannot be required to do night work while pregnant. In some countries, including Germany, night work is actually illegal for pregnant workers, which could be a serious problem for young scientists eager to get access to big equipment at off-peak times.

In general, the solution is to anticipate the problem and plan your work carefully. Scientists at the British Antarctic Survey (BAS) can no longer "go south" when they get pregnant. Several women at BAS have



had children recently or are about to, but there has been little inconvenience. Eric Wolff, a principal investigator at BAS, says: “We have not yet had a team member who was unable to go at the last minute because of pregnancy. I suspect people plan their babies or their trips south quite carefully.”

If you have recently become pregnant or are planning to, it can be helpful to work in a team so someone else can cover the work you can't do. Nadine Johnston, a marine ecologist at BAS working on feed webs in the southern ocean, is seven months pregnant. “My data are samples of krill and fish, which others can collect for me to analyse,” she says.

Challenge 3: Keeping Your Baby Safe

The greatest risks to your foetus at work are chemicals known to be embryotoxins and infectious diseases that can cause birth defects or spontaneous abortion. Ionising radiation is also a problem, especially if it comes from radionuclides of bone-building elements such as calcium and phosphorus, which are preferentially taken up by the foetus. Safety levels for radionuclides are lower for pregnant women. In the case of lead, levels are lower for all women of childbearing age.

That's because the foetus is most vulnerable in the early weeks of pregnancy, when you may not know you are pregnant. Irene Figa-Talamanca, a toxicologist at the University of Rome “La Sapienza,” would prefer to see all workers explicitly protected from reproductive hazards. “Many occupational risks have effects very early in pregnancy and determine subfecundity in men and women,” she says. “Specific measures for pregnant women may have negative consequences for women's employment opportunities.”

Toxicologist Paul Illing, an adviser to the U.K. government on the safety of chemicals at work, asserts that the health and safety regulations assume all women are in the early stages of pregnancy. “In theory, everyone is protected,” he says. “In practice, only a limited number of chemicals have been properly tested for reproductive toxicity, so many hazards are not known about.” Figures from ILO indicate that of the hundreds of thousands of chemicals in regular use in labs, about 2,500 of them have been tested for reproductive effects, says ILO's Paul.

Even groups of chemicals that have been tested can be steeped in controversy. The ethylene glycol ethers used in the semiconductor industry are known to be embryotoxins, for example, but there is disagreement between American and British studies about whether there is a real effect on human pregnancies.

If you work with chemicals you think may pose a risk but are not on any list of recognised hazards, the only solution is to familiarise yourself with what is known about them and let your employer know you are uncomfortable about the safety of your baby. Without legislation, an employer is not obliged to take any action, but you may reach an agreement.

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When it comes to infectious diseases from animals, David Buxton, head of pathology at the Moredun Research Institute in Edinburgh, United Kingdom, is used to handling the risks. He works on the causes of infectious abortion in sheep. The intracellular bacterium *Chlamydophila abortus* and the protozoan parasite *Toxoplasma gondii* are two of his main subjects. They are also the reason why all pregnant women are told, antenatally, to avoid contact with farm animals, particularly sheep and lambs.

Buxton's team manages hundreds of sheep and often works with animals that have been deliberately infected. "Our safety regulations are ferocious," he says. "If a woman is pregnant, she is not just excluded from the sheep pens. She's excluded from the labs as well"—and confined to her desk. Women are told that if there is any chance that they might be pregnant, they must say so immediately. Buxton admits that the rest of the team have to work harder to support women who cannot be involved with the practical work.

Challenge 4: Taking Maternity Leave

Taking time off to have your baby has its own problems, especially if you work in a fast-moving field. A year later, your work may be superseded and your command of the literature weak. Get the paper published before you go.

"Taking time off to have children reduces your visibility in the international community," says Wolff. "Regular attendance at conferences is important. If you are off the horizon, people forget to invite you as a speaker or involve you in collaboration." BAS goes to considerable lengths to ensure that mothers and mothers-to-be are able to attend at least one conference a year.

"The number of invited talks is one of the factors included in the Research Assessment Exercise, by which university departments are rated nationally," says Penny Gowland, professor of physics at Nottingham University in the United Kingdom. Gowland encourages women to come back from maternity leave with confidence. "Do not allow yourself to be sidelined because you have been away for a while and you can no longer engage in the long-hours culture," she says.

Other useful Web sites

- » European Agency for Safety and Health at Work⁴
- » United Kingdom Health and Safety Executive⁵
- » Royal Society of Chemistry guidance on pregnancy and chemicals at work⁶ (soon to be superseded by a new edition).



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Challenge 5: Coping with Discrimination

The Spanish word for pregnant is *embarazada*. Are scientists who find themselves “embarrassed with child” treated differently by their colleagues because of their condition? There is little sign of this in the public science sector, universities, and research institutes. Female scientists report full support from those around them. But there is plenty of evidence of discrimination in other sectors. “There is widespread prejudice against pregnant women, particularly in small companies,” says Paul. “There is an assumption that maternity absence is expensive. Women don’t want to tell their employer they are pregnant, in case there are redundancies coming up.”

In the world of small biotech and pharma businesses, this situation is all too familiar. Recent research by the Equal Opportunities Commission⁷ in the United Kingdom found that 7% of pregnant women—30,000 people a year—lose their jobs because they are pregnant. Paul warns that scientific companies must guard against this discrimination; not only is it illegal, it risks losing the huge potential of women in the workforce.

Across Europe, only 15% of scientists in the private sector are women, half the proportion you find in the public sector. Ragnhild Sohlberg represents the energy company Norsk-Hydro and was co-chair of the European Commission’s Committee on Women in Industrial Research.⁸ Coming from Norway, where women actually dominate in areas such as biomedical science, she has a different perspective. She believes science, particularly engineering and physical sciences, is a good career for women because so much of it is computer-based and can be done at any time.

Sohlberg was shocked one day to hear a German colleague suggest that female scientists should not have children because it will ruin their careers. What is the Scandinavian secret? “It’s to do with attitude,” she says—the attitude of the government, the scientific community, and of families themselves. In Norway, women scientists are very well supported. Maternity pay is one year; child care is largely taken in charge by the state. “We need some tremendous changes of attitude on the continent,” says Sohlberg. Individual scientists working while pregnant can help bring about this change, as long as they stay effective by exercising their rights and keeping their work comfortable and safe.

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1. Pregnant workers and new mothers: <http://osha.europa.eu/data/legislation/10>
2. Risk assessment: <http://www.europa-eu.int>

3. International Labour Organisation (ILO) <http://www.ilo.org>
4. European Agency for Safety and Health at Work: <http://osha.europa.eu/OSHA>
5. United Kingdom Health & Safety Executive: <http://www.hse.gov.uk>
6. Guidance on pregnancy and chemicals at work: <http://www.rsc.org/pdf/ehsc/pregnancy.pdf>
7. Equal Opportunities Commission: <http://www.eoc.org.uk>
8. Committee on Women in Industrial Research: http://ec.europa.eu/research/science-society/women/wir/index_en.html

BRIDGING THE CULTURAL DIVIDE IN MEDICINE

by Edna Francisco

You might say that Lori Arviso Alvord was predestined to become a doctor. According to a Navajo tradition, parents bury their newborn's placenta and umbilical cord at a special site that represents their dreams for the child. Because Alvord's father was stationed at a military base in Tacoma, Washington, Alvord was born at one of the local hospitals, and there her placenta remained. Years later, Alvord became a regular presence in hospitals as the very first Navajo woman surgeon.

As an associate dean of student and multicultural affairs at Dartmouth Medical School in Hanover, New Hampshire, Alvord is attempting to bridge two worlds of healing: Navajo and Western medicine. Alvord believes in a system of health care, especially but not exclusively for Native Americans, based on both modern medicine and traditional wisdom. "My whole objective is to try to achieve a better way to deliver health care not just for native people, but for everyone," she explains. Alvord hopes, too, that such an approach will inspire young Native Americans to become physicians and address many of the conflicts between Western medicine and Native American traditions.

During her medical training, Alvord struggled because being Navajo and a female surgeon was rare. (It still is.) Making it through training meant going against some native traditions and adapting to some nonnative ways. But these experiences gave her a pioneering point of view on how healing can be improved.

Separated for the First Time

Half Caucasian and half Navajo, Alvord grew up on a reservation in Crownpoint, New Mexico. As a child, her biggest dream was to get a college degree. Because Dartmouth College had a small and supportive group of Native American students, Alvord applied there and nowhere else. After being accepted at Dartmouth, Alvord started learning how to survive in a high-pressure academic world.

Leaving home for college was not easy for Alvord because it violated *hozho*, or "walking in beauty," a Navajo lifestyle that encourages balance



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and harmony. The Navajo believe the four sacred mountains that surround their traditional land provide protection and that moving away would cause disorder in the lives of the people.

Alvord, among the first women and Native Americans to attend Dartmouth College, had a difficult time adjusting as a result of the sexism and racism on campus. Male students generally disliked the presence of female students. The unofficial Dartmouth mascot resembled a Hollywood Indian, with war paint and fake feathers. She also had difficulty relating to non-Indian students because of cultural differences. Yet despite these problems, Alvord was grateful for the opportunity to be a part of Dartmouth's efforts to provide Native Americans with an Ivy League education. She graduated in 1979 with a double major in psychology and sociology and hoped to work on her reservation.

New Career, Bigger Challenges

Majoring in psychology fueled her interest in the human brain, and she landed a job as a research assistant in a brain physiology lab at the University of New Mexico (UNM). She had once given up on science after receiving a "D" in college calculus, a result of poor high school preparation. Dartmouth, however, quickly remedied her educational shortcomings.

Alvord's research experience prompted her to take premed courses at UNM. Soon she found resonances between science and traditional Navajo teachings. In her autobiography, *The Scalpel and the Silver Bear* (Bantam Books, New York, NY, 1999), Alvord described her new passion: "The way the white blood cells attack an intruding virus, the way too much or too little of anything disturbs the body functions ... it was all *hozho*, the beautiful balance of the universe, rephrased in scientific terms."

Alvord eventually attended medical school at Stanford University, but she continued to struggle with cultural differences. Alvord disliked attracting attention to herself and being competitive. She wasn't comfortable bombarding her patients with questions, touching them, or looking them directly in the eye. These actions violated Navajo notions of respect. She also feared dissecting cadavers because Navajos believe they harbor evil spirits. In time she dealt with these challenges and learned to place them in the context of Western medicine.

New Ideas to Improve Health Care

Alvord returned to serve her people whenever she could during her medical training and early practice. Being around other Navajo people benefited her by making her feel comfortable and raising her confidence as a surgeon. Ron Lujan, another Native American surgeon, showed her ways to do her job while honoring native traditions—a practice that put her and her patients at ease: touching patients respectfully and only when she had to, not rushing

her patients for answers, treating them like family, and generally working to gain their trust. Alvord noticed that when patients felt cared for and respected by their caretakers, they seemed to do better during and after operations.

Alvord also learned that Navajo healers' ways of curing people were beneficial, so she worked to integrate them into her caregiving methodologies. "Science is beginning to catch up with Native philosophies," she says. "We now know that reducing stress and anxiety can have positive effects on how our bodies function and that the mind is able to help the body heal. [Navajo and other] healing ceremonies are designed to help the mind heal the body, through a variety of mechanisms."

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In the long run, Alvord believes Navajo philosophies should be used to treat patients of any cultural background. She argues that many people feel that their doctors don't understand them and don't care enough about them. She also points out that Western medicine has been businesslike and based upon a history that has been dominated by white men. Converting old hospitals into "beautiful healing environments," rather than just having square, cold rooms with bare walls, will also help relieve patients' stress and accelerate healing.

The young woman who faced barriers from two cultures—her own and the dominant one—has evolved into an influential force in medicine and one who "loves breaking stereotypes." Today Alvord continues to "walk in beauty" with her husband and two children.

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